Unrivalled advantages of non-intrusive flow measurement with the FLUXUS® F/G 721:

- No process interruption - maintenance-free (no need for frequent work in hazardous areas)
- Certified for operation within hazardous areas (ATEX, IECEx Zone 1/2, FM Class I / Div 2)
- Fast measuring dynamics also captures highly pulsating flows
- Reliable measurements even of abrasive and/or particle-loaded or gas entrained liquids or gas - wetted instrumentation

Unique features of the FLUXUS® F/G 721:

- Highly accurate and reliable volume and mass flow measurement of liquids and gases as well as thermal energy
- Accurate and reliable measuring even of few bar built-in hybridTM mode even of particle loaded or gas-intruded liquids
- Virtually noise-free and wear optimised due to measurement outside the pipe wall
- Every measurement system is pre-calibrated in-house (traceable to national standards) and delivered with a calibration certificate
- Matched transducers, certified for operation within hazardous areas (ATEX, IECEx Zone 2); SIL2 capable
- Permanent coupling with unique couplant pads, virtually free of wear and tear
- Digital signal processing as thermal energy
- Independent of pipe material, diameter, wall-thickness and internal pressure and temperature
- No process interruption - maintenance-free (no need for frequent work in hazardous areas)
- Highly operational safety with no risk of leaks
- Accurate and repeatable measurement readings - even at extremely low flow rates (high turndown ratio)
- Highly cost efficient in comparison to wetted instrumentation

FLUXIM is in an active leader in many areas of process instrumentation. As a worldwide pioneer in the non-intrusive flow measurement of liquids and gases, FLUXIM has been leading the way in ultrasonic clamp-on flow metering for more than 25 years. In addition to non-intrusive flow measurement, FLUXIM specializes in innovative online process analysis using ultrasonic technology and refractometry. Year after year, the Berlin-based company continues its substantial investment in research and development in order to maintain and further improve its position as an industry leader. Keeping with its core principles, FLUXIM takes customer feedback very seriously. Every generation of FLUXIM products is directly driven by customer and industry needs.

The FLUXIM Commitment to Customer Service

FLUXIM considers itself not only a manufacturer of measuring instruments, but also a provider of technical and consulting services. These services include on-site measurements, laboratory analysis, project handling, training, commissioning, instrument repair, and consulting services. The company’s focus and dedication is directed towards providing the highest quality equipment with the best support and service possible. Our aim is to set standards in all what we are doing.

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The FLUXUS® F/G721 is a technological breakthrough in the ultrasonic clamp-on flow measurement of liquids and gases. With its new hardware design and improved, powerful digital signal processing it features other non-invasive ultrasonic flowmeters in terms of accuracy, reliability and robustness.

Highly sophisticated signal filters, faster than ever processing capacities and substantially improved measurement algorithms make the FLUXUS® F/G721 a state-of-the-art measuring solution even for the most challenging applications. The FLUXUS® F/G721 is suitable for all applications in the chemical industry, whether in consisting of different materials and geometries or highly sophisticated measurement tasks. Its advanced technology allows for non-intrusive flow measurement even on pre-stressed concrete cylinder pipes (PCCP) which may be several meters in diameter.

Its advanced technology allows for non-intrusive flow measurement on pre-stressed concrete cylinder pipes (PCCP) which may be several meters in diameter.

**Pushing the Boundaries**

The FLUXUS® F/G721 offers non-invasive flow measurement of virtually any kind of liquid or gas, from the smallest tubing to the largest penstock, independent of the pressure inside the pipe and over a very large temperature range. For tank terminals.

- **Oil & Gas**
  - From wellheads to the gas stations - everything is flowing. For the safe and efficient operation of the multitude of processes in pipeline production, transport and transport, all these flows need to be monitored. Such environments, challenging pressure conditions and high dynamic pressure, require the highest demands on measuring equipment.
  - FLUXUS® F/G721 excels, where others fail. Flow measurement far from the pipe is independent of the pressure inside and not subject to wear and tear. In conjunction with the patented WaveInjector® mounting fixture, liquid flows can be measured in an unrivalled temperature range from -190 °C (for LNG) up to +600 °C.
  - The FLUXUS® F/G721 energy is particularly suited to accurate measurement of energy consumption in climate-critical processes. With regard to gases, the FLUXUS® G721 is the perfect solution for non-invasive media identification, it is the ideal allocation meter for large terrains.

- **Chemical Industries**
  - Modern, integrated chemical plants form highly complex networks of mass and energy flows. Safety takes top priority. Continuous monitoring of all relevant process parameters is essential for safe operation.
  - FLUXUS® F/G721 excels from the safe side - the outside of the pipe. The practical advantage of non-intrusive flow measurement systems is obvious: no wear and tear by the medium flowing inside the pipe, no risk of liquid leakage or fugitive gas, emissions, no pressure loss and, above all, unaltered fluid flowability.

- **Water & Wastewater**
  - Withdrawal of water usually begins at wells, reservoirs and large water tanks. Pipelines with large nominal diameters also mean high costs for wetted instrumentation and for installation work. Thus the cost case with FLUXUS® F/G721. Moreover, the FLUXUS® F/G721 offers exceptionally precise bilateral flow measurement over a wide turndown ratio, which is especially important when capturing very low/large scale water flows.
  - FLUXUS® F/G721 measures independently of the pipe materials and material. Its advanced technology allows for non-intrusive flow measurement even on pressurized concrete cylinder pipes (PCCP) which may be several meters in diameter.

- **Energy Efficiency**
  - Energy counts in every respect. Energy is a key factor for human life, work and economy. Saving energy pays off. The FLUXUS® F721 Energy is the ideal solution to tap energy efficiency potentials non-intrusively, in HVAC applications as well as in industrial processes. Whether it is used for thermal power measurement in district heating networks or for monitoring the efficiency at a steam turbine, the non-intrusive measurement never affects the safe supply in any way. With its flow-remote measuring technology, it can also be used for low flows with high flow rate and high flow rate with low flow rate in different gas and liquid flows.

- **Power**
  - Safe operation and security of supply are essential in power generation. Therefore the problem is clear: it’s better not to touch the point. This is exactly what the FLUXUS® F/G721 can do. Flow measurement flow rates in the gigawatt range is a piece of cake for the FLUXUS® G721. However, the FLUXUS® F/G721 Energy is particularly suited to accurate measurement of energy consumption in climate-critical processes.

- **Other Industries**
  - The application range of FLUXUS® is very broad. The FLUXUS® G721 shows its full potential in highly complex environments. FLUXUS® F/G721 excels in all application fields including nuclear power plants. Whether it is used for flow measurement in the primary circuit of a nuclear power plant.

The FLUXUS® F/G721 is the technological breakthrough in the ultrasonic clamp-on flow measurement of liquids and gases.
FLUXUS® F/G721

Setting Standards in Non-Intrusive Liquid and Gas Flow Measurement

FLUXIM in partnership

Unrivalled advantages of non-intrusive flow measurement with the FLUXUS® F/G721:

- No process interruption - maintenance-free (no need for frequent work in hazardous area)
- Certified for operation within hazardous areas (ATEX, IECEx Zone 2)
- Fast measuring dynamics also capture highly pulsating flows
- Reliable measurements even of sludges, liquids with gaseous entrainment or using gas-laden media in BOF of TNG
- High operational safety with no risk of leaks
- Independent of pipe material, diameter, wall thickness and internal pressure and temperature conditions
- Accurate and repeatable measurement readings - even at extremely low flow rates (high turndown ratio)
- Highly cost-efficient in comparison to traditional solutions

Technical facts

Measurement uncertainty (inductive flow rate):

FLUXUS® F/G721 (liquids): ± 1 ... 2% of reading ± 0.005 m/s
FLUXUS® F/G721 (gases): ± 1 ... 2% of reading ± 0.005 m/s

Explosion protection:

Class I, Div 2

Available transducers:

F/G 721 (liquids): Pressure transducers for liquids, slurries, liquids with gaseous entrainments

FLUXUS® F/G721: Digital Communication:

Profibus PA, Foundation Fieldbus

Inputs:

Digital pulse, frequency, binary

Outputs:

Digital pulse, frequency, binary

Outputs accuracy and reliability measurement readings: due to built-in hybrid transceiver within packet-loaded or gas-entrained liquids

Flux measurement stability:

Permanent coupling with unique conical coupling pads, through access to internal transceiver (no need to stop process) - ensure contact pressure area of theariably optimized

Unique features of the FLUXUS® F/G721:

- Highly accurate and reliable volumetric and mass flow measurement of liquids and gases as well as thermal energy
- Accurate and reliable measurement readings - due to built-in hybrid transceiver within packet-loaded or gas-entrained liquids
- Virtually free of wear and tear with no maintenance required due to measurement outside the pipe wall
- Every measurement system is pre-calibrated in-house (traceable to national standards) and delivered with a calibration certificated
- Matched transducers, integrated temperature compensation (according to ANSI/ASME IPC-5.1-2011 regulations) and digital signal processing ensure highest accuracy and flow measurement stability
- Permanent coupling with unique conical coupling pads, through access to internal transceiver (no need to stop process) - ensure contact pressure area of theariably optimized

FLEXIM in an active leader in many areas of process instrumentation. As a worldwide pioneer in the non-intrusive flow measurement of liquids and gases, FLEXIM has been leading the way in ultrasonic clamp-on flow metering for more than 25 years. In addition to non-intrusive flow measurement, FLEXIM specialises in innovative online process analysis using ultrasonic technology and refractometry. Year after year, the Berlin-based company continues its substantial investment in research and development in order to maintain and further improve its position as an industry leader. In keeping with its core principles, FLEXIM takes customer feedback very seriously. Every generation of FLEXIM products is directly driven by customer and industry needs.

The FLEXIM Commitment to Customer Service

FLEXIM considers itself not only a manufacturer of measuring instruments, but also a provider of technical and consulting services. These services include on-site measurements, laboratory analysis, project planning, training, commissioning, instrument rental and consulting services. The company’s focus and dedication is directed towards providing the highest quality equipment with the best service and support possible. Our aim is to set standards in all what we are doing.

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The FLUXUS® F/G721 is a technological breakthrough in the ultrasonic clamp-on flow measurement of liquids and gases. With its new hardware design and improved, powerful digital signal processing it surpasses any other non-intrusive ultrasonic flowmeter in terms of accuracy, reliability and repeatability. Highly sophisticated signal filters, faster than ever processing capacities and substantially improved measurement algorithms make the FLUXUS® F/G721 a state-of-the-art measuring solution even for the most challenging applications, independent of liquid or gas, from the smallest tubing to the largest penstock, independent of flow conditions and compensating for such factors such as temperature, pressure, density or non-linear fluid characteristics. Extreme fast measurement cycles allow for real-time monitoring of highly dynamic processes.

Pushing the Boundaries

FLUXUS® F/G721 offers non-intrusive flow measurement of virtually any kind of liquid or gas, from the smallest tubing to the largest penstock, independent of the pressure inside the pipe and over a very large temperature range. Due to its advanced technology, the measurement is unaffected by solid or gaseous entrainment or gas wetness and distinguishes itself by its unrivalled turndown ratio: Even low flows down to only a few liters per hour can be used in explosion hazard areas (ATEX, IECEX Zone 2, FM Class I /Div2, CSA armour-sheathed cables). The FLUXUS® F/G721 offers performance excellence and reliability in highly dynamic processes. Whether it is used for thermal power measurement in district heating networks or for monitoring the efficiency of an industrial heat exchanger, non-intrusive measurement never affects the safety supply in any way. With its power monitoring for low flows and highly accurate measurement of energy flows, the FLUXUS® F/G721 Energy is particularly suited for accurate measurement of energy consumption in climatisation systems. Due to its built-in Hybrid Trek mode, wastewater slurries with high solid / gaseous contents or on lines carrying heavily moisturized gas. As the FLUXUS® F/G721 can also be used for non-intrusive media identification, it is the ideal allocation meter for tank terminals.

Oil & Gas

From wellheads to the gas station — everything is flowing. For the safe and efficient operation of the multitude of processes in hydrocarbon production, treatment and transport, all these flow rates need to be monitored, checked for emissions, no pressure loss and, above all, unlimited plant availability.

Water & Wastewater

Withdrawal of water usually begins at wells, reservoirs and large water tanks. Pipes with large nominal diameters also mean high costs for wetted instrumentation and for installation work — this is not the case with FLUXUS®. Moreover, the FLUXUS® F/G721 offers exceptionally precise bidirectional flow measurement over a wide turndown ratio, which is especially important when capturing low flow rates at off-peak times for load control.

Chemical Industries

Modern, regarded chemical plants form highly dynamic networks of more and more energy flows. Safety takes top priority. Continuous monitoring of all relevant process parameters is essential for fault-free operation. FLUXUS® F/G721 measures from the safe side — the outside of the pipe. The practical advantages of non-intrusive flow measurement are obvious in warm environments by the medium flowing inside the pipe, no risk of liquid leakage or fugitive gas emissions, no pressure loss and, above all, continuous control and diagnostic transparency for highly dynamic processes.

Energy Efficiency

Energy counts in every respect. Energy is a key factor for work and economy. Saving energy pays off. The FLUXUS® F/G721 Energy is the ideal solution to tap energy efficiency potentials non-intrusively, in HVAC applications as well as in industrial processes. Whether it is used for thermal power measurement in district heating networks or for monitoring the efficiency of an industrial heat exchanger, non-intrusive measurement never affects the safety supply in any way. With its power monitoring for low flows and highly accurate measurement of energy flows, the FLUXUS® F/G721 Energy is particularly suited for accurate measurement of energy consumption in climatisation systems. Due to its built-in Hybrid Trek mode, wastewater slurries with high solid / gaseous contents or on lines carrying heavily moisturized gas. As the FLUXUS® F/G721 can also be used for non-intrusive media identification, it is the ideal allocation meter for tank terminals.

Power

Safety operation and security of supply are essential in power generation. Therefore it is clear: it better not to touch the point. This is why non-intrusive, flow rate measurement in the gigawatt range is a matter of high water power plants or even in the primary circuit of a nuclear power plant.

Other Industries

The application range of FLUXUS® is vast. The non-intrusive measurement principle also plays out its full potential in hygiene applications, such as in the pharmaceutical and bio industry, in the sanitary industries. By measuring from the outside of the pipe wall, any corrosion or organo-metallic build-up can be identified. Other applications include the measurement of mineral slurries or acid-loaded environments. The in-line ultrasonic technology is always preferred in comparison to wedge flowmeters and insert sensors.
The FLUXUS® F/G721 is a technological breakthrough in the ultrasonic clamp-on flow measurement of liquids and gases. With its non-intrusive design and powerful, digital signal processing it surpasses any other ultrasonic flowmeter in terms of accuracy, reliability, and versatility.

Highly sophisticated signal filters, better than any other processing capabilities and substantially improved measurement algorithms make the FLUXUS® F/G721 a state-of-the-art measuring solution even for the most challenging applications. Extremely low flow turbulence levels can be measured accurately under even the most challenging conditions and compromises for particular such as been dispersed and highly viscous media. The FLUXUS® F/G721 excels where others fail. Flow measurements taken outside the pipe are independent of the pressure inside and are not subject to wear and tear. In combination with the patented WandelHoffmann® measuring head, both a fullTurndown ratio and an unlimited temperature range from -196°C to +100°C (for cryogenic applications). Due to its built-in Hybrid Trek mode, the FLUXUS® F/G721 provides reliable measurements in almost any challenging applications such as the measurement of condensate flows with the measurement of liquid or gas contents at or below carrying capacity in liquids. As the FLUXUS® F/G721 can also be used for non-intrusive leakage detection in the oil and gas industry for leak verification.

The FLUXUS® F/G721 offers non-intrusive flow measurement of virtually any kind of liquid or gas, from the smallest tubing to the largest penstock, independent of the pressure inside the pipe and over a very large temperature range. Due to its advanced technology, the measurement is unaffected by solid or gaseous entrainments or gas wetness and distinguishes itself by its unrefined sensitivity for low flows and with highly accurate paired temperature sensors. On the face of it, non-intrusive measurement never affects the safe supply in any way. With the WandelHoffmann® measuring head, highly accurate and gas-wet measurement can be done, even in the presence of a vacuum. The FLUXUS® F/G721 Energy is particularly suited to accurate measurement of energy consumption in climate control systems.

Pushing the Boundaries

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Setting Standards

Reliable - Safe - Efficient

Versatile Applications

Oil & Gas

From windfarms to the gas stations – everything is flowing. For the safe and efficient operation of the multitude of processes in application, production, treatment and transport, all these flows must need to be measured. Environmental challenges, compining pressure conditions and highly dynamic environments highlight the highest demands on measuring equipment.

FLUXUS® F/G721 excels, with others fail. Flow measurement taken outside the pipe is independent of the pressure inside and is not subject to wear and tear. In combination with the patented WandelHoffmann® measuring head, both a full Turndown ratio and an unlimited temperature range from -196°C to +100°C (for cryogenic applications). Due to its built-in Hybrid Trek mode, the FLUXUS® F/G721 provides reliable measurements in almost any challenging applications such as the measurement of condensate flows with the measurement of liquid or gas contents at or below carrying capacity in liquids. As the FLUXUS® F/G721 can also be used for non-intrusive leakage detection in the oil and gas industry for leak verification.

Chemical Industries

Modern, engineered chemical plants form highly intricate networks of rooms and energy flows. Safety takes top priority. Continuously monitoring all relevant process parameters is essential for leak-free operation.

FLUXUS® F/G721 measures from the safe side – the outside of the pipe. The practical advantages of non-intrusive flow measurement are obvious: no wear and tear by the medium flowing inside the pipe, no risk of liquid leakage or fugitive gas emissions, no pressure loss and, above all, interference-free measurement.

Power

Safe operation and security of supply are essential in power generation. Therefore it is clear: better not to touch the point. This is easily managed. If you want to, you can also measure flow rates in the gigantic headrace pipes at a hydro power plants or in the primary circuit of a nuclear power plant. FLUXUS® F721 Energy stands for absolutely reliable flow measurements without any compromises to safety. In combination with the WandelHoffmann® measuring head, highly accurate and gas-wet measurement can be done, even in the presence of a vacuum. The FLUXUS® F721 Energy is the ideal solution to tap energy savings. In every respect. Energy is a key factor for human life, work and economy. Saving energy pays off. FLUXUS® F721 Energy is the ideal solution to tap energy efficiency potentials non-intrusively, in HVAC applications as well as in industrial processes. Whether it is used for thermal power measurement is district heating networks or for monitoring the efficiency of air conditioners, fieldbus enabled, non-intrusive measurement never affects the safe supply in any way. With the WandelHoffmann® measuring head, highly accurate and gas-wet measurement can be done, even in the presence of a vacuum.

FLUXUS® F721 Energy is particularly suited to accurate measurement of energy consumption in climate control systems.

Water & Wastewater

Withdrawal of water usually begins at wells, reservoirs and large water tanks. Pipes with large nominal diameters also mean high costs for wetted instrumentation and for installation work. This is not the case with FLUXUS®. Instead, the FLUXUS® F721 offers exceptionally precise bidirectional flow measurement over a wide turndown ratio, which is especially important when capturing very low velocities at off-peak times for load control.

FLUXUS® F/G721 measures independently of the pipe diameters and material. Its advanced technology allows for non-intrusive flow measurement even on pre-reamed concrete cylinder pipes (PCRCP) which may be several meters in diameter. Due to its built-in Hybrid Trek mode, wastewater stations with high head/gas/waste contents can also be precisely monitored.

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Energy Efficiency

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Power

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FLUXUS® F/G721 measures independently of the pipe diameters and material. Its advanced technology allows for non-intrusive flow measurement even on pre-reamed concrete cylinder pipes (PCRCP) which may be several meters in diameter. Due to its built-in Hybrid Trek mode, wastewater stations with high head/gas/waste contents can also be precisely monitored.

Other Industries

The application range of FLUXUS® is vast. The non-intrusive measurement principle also plays out its full potential in hygienic applications, such as in the pharmaceutical, food & beverages or even the semiconductor industries. By measuring from outside the pipe wall, direct media contact and thus potential media contamination can be ruled out. Other applications include the measurement of mineral slurries or acid-loaded pipelines or maintaining the correct flow rates in marine or reservoir applications. Due to the lack of intrusive measurement technology it is always preferred in comparison to wetted flowmeter technologies.
Unrivalled advantages of non-intrusive flow measurement with the FLUXUS® F/G 721:

- No process interruption - maintenance free (no need for frequent work in hazardous areas)
- Certified for operation within hazardous areas (ATEx, IECEx Zone 2)/UL listed/capable
- Fast measuring dynamics also capture highly pulsating flows
- Reliable measurements even of slurries, liquids with gas entrainment or at high gas entrainment levels
- High operational safety with no risk of leaks
- Independent of pipe material, wall thickness and internal pressure and temperature
- Accurate and repeatable measurement readings - even at extremely low flow rates (high turndown ratio)
- Highly cost efficient in comparison to traditional inserts

Unique features of the FLUXUS® F/G 721:

- Highly accurate and reliable volume and mass flow measurement of liquids and gases as well as thermal energy
- Accurate and reliable measuring - due to built-in hybrid/bernoulli mode even of particle-loaded or gas entrained liquids
- Virtually free of wear and tear with no maintenance required due to measurement outside the pipe wall
- Every measurement system is pre-calibrated in-house (traceable to national standards) and delivered with a calibration certificate

- Matched transducers, integrated temperature compensation (according to ANSI/ASME MFC-5.1-2011 regulations) and digital signal processing result in outstanding performance and flow measurement stability
- Permanent coupling with unique couplant pads, resulting secure and lasting transducer contact pressure also at heavily vibrating pipes
- Electronic communication as well as remote parameterization and diagnostic capabilities

FLUXUS is an active leader in many areas of process instrumentation. As a worldwide pioneer in the non-intrusive flow measurement of liquids and gases, FLUXUS has been leading the way in ultrasonic clamp-on flow metering for more than 25 years. In addition to non-intrusive flow measurement, FLUXUS specializes in innovation oriented process analysis using ultrasonic technology and refractometry. Year after year, the Berlin-based company continues its substantial investment in research and development in order to maintain and further improve its position as an industry leader. Keeping in mind the core principle, FLUXUS takes customer feedback very seriously. Every generation of FLUXUS products is directly driven by customer and industry needs.

The FLEXIM Commitment to Customer Service

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Within the F/G 721 product family, FLEXIM offers a wide range of measurement capabilities for use in all industries.

- **Energy Efficiency**
- **District Energy**
- **Power Generation**
- **Water & Wastewater**
- **Petrochemical**
- **Chemical**
- **Semiconductor**
- **Mining**
- **Beverage**
- **Chemical**
- **Food**
- **Mining**
- **Oil & Gas**
- **Pharmaceutical**
- **Chemical**
- **Power Generation**
- **Water & Wastewater**
- **Petrochemical**
- **Chemical**
- **Semiconductor**
- **Mining**
- **Beverage**

To find out more, visit our website at [www.flexim.com](http://www.flexim.com) or contact us at [salesus@flexim.com](mailto:salesus@flexim.com) or +1 63 14 92 23 00.